

REMARKS/ARGUMENTS

Claims 8-27 are pending. Favorable reconsideration is respectfully requested.

The present invention relates to an organic nitrogen-containing composition comprising fermentation mother liquor obtained by culturing a microorganism having L-glutamic acid-producing ability under specified conditions. See Claim 8. The microorganism is cultured in a liquid medium medium the pH of which is adjusted 5.0 or less, to allow L-glutamic acid to be produced and accumulated, which is accompanied by precipitation of L-glutamic acid, and then the L-glutamic acid is separated from the medium. See Claim 8.

Example 1 and Comparative Example 1 of the present application provide a powerful demonstration that the method of culturing the microorganism has a dramatic effect on the product obtained.

Example 1 was conducted in accordance with the claimed invention. That is, the microorganism was cultured under conditions where the L-glutamic acid precipitated, at a pH less than 5.0 (pH = 4.5), and was then separated. Example 1 is described at pages 43-46 of the specification. See, in particular, page 45, lines 6-12.

In the Comparative Example, the procedure was the same as used in Example 1, expect that the microorganism was cultured under conditions where the L-glutamic acid did not precipitate, at a pH greater than 5.0 (pH = 6.0). Comparative Example 1 is described at pages 46, bottom, to page 47 of the specification.

As described at page 48 of the specification, culturing the microorganism as recited in Claim 8 provides a fermentation mother liquor which has a higher content of organic nitrogen and, in particular, a high content of organic nitrogen other than glutamic acid nitrogen, as compared to a process in which the microorganism is cultured under neutral conditions and

then acidifying the post-culture broth. In addition, the composition produced as specified in Claim 8 has a smaller amount of sulfate.

As shown in Table 1 at page 46 of the specification, the composition produced in Example 1 had a mass% of organic nitrogen with respect to total nitrogen of 46%. In contrast, the corresponding value for the composition produced in Comparative Example 1 was only 25% (see Table 2 at page 47 of the specification).

With respect to sulfate, the composition produced in Example 1 had a mass% of sulfate with respect to organic nitrogen of 315% (see Table 1 at page 46). In contrast, the corresponding value for the composition produced in Example 2 was much higher: 955% (see Table 2 at page 47).

The rejections of the claims under 35 U.S.C. §102(b) over Ter-Sarkesyan et al. and JP 50-129363 (JP '363) are respectfully traversed. Those references fail to disclose the claimed composition.

Ter-Sarkesyan et al. disclose a fertilizer obtained by combining and neutralizing spent culture broth, wash water, and mother liquor from a crystallization stage. The culture broth is obtained by culturing a microorganism under neutral pH to accumulate L-glutamic acid in a medium and then acidifying the post culture broth to pH 0.8-1.2 to precipitate L-glutamic acid. Further, the mother liquor is that from a crystallization stage.

On the other hand, the mother liquor contained in the fertilizer of the present invention is obtained by culturing a microorganism directly under pH of 5.0 or less wherein L-glutamic acid is to be precipitated and separating the precipitated L-glutamic acid from the post fermentation broth. As shown in Example 1 and the corresponding Comparative Example of the specification (see page 43-48), as discussed above, the composition of a fertilizer comprising fermentation mother liquor obtained by culturing microorganism directly under pH of 5.0 or less is different from that of a fertilizer comprising fermentation

mother liquor obtained by culturing a microorganism under a neutral condition and acidifying the post culture broth to precipitate L-glutamic acid. That is, the former has a high content of organic nitrogen (which is effective as a fertilizer, a high proportion of organic nitrogen with respect to total nitrogen), and, in particular, a high content of organic nitrogen other than L-glutamic acid nitrogen (see page 48, lines 2-7). Fermentation under pH of 5.0 or less can be allowed on account of the specific ability of the microorganism used in the present invention to produce L-glutamic acid under such acidic conditions. Such a specific ability had never been conferred on conventional microorganisms. The microorganism disclosed in Ter-Sarkesyan et al. is a conventional microorganism and does not have L-glutamic acid-producing ability under pH of 5.0 or less. Thus, the fertilizer of Ter-Sarkesyan et al. does not have such a content of organic nitrogen. In addition, the mother solution contained in the fertilizer of Ter-Sarkesyan et al. is not a solution from culture stage but from a crystallization stage, which is totally different from the mother liquor contained in the fertilizer of the present invention.

The fertilizer disclosed in JP '363 is obtained by culturing a microorganism under neutral pH and then acidifying the post culture broth to precipitate L-glutamic acid. The microorganism used in JP '363 is a conventional microorganism and does not have L-glutamic acid-producing ability under pH of 5.0 or less. Thus, just like the fertilizer of Ter-Sarkesyan et al. as described above, the fertilizer disclosed by JP '363 is different from the fertilizer of the present invention in its composition, that is, content of organic nitrogen, etc.

According to the MPEP:

The structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art, especially where the product can only be defined by the process steps by which the product is made, or where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product. See, e.g., *In re Garnero*, 412 F.2d 276, 279, 162

USPQ 221, 223 (CCPA 1979) (holding “interbonded by interfusion” to limit structure of the claimed composite and noting that terms such as “welded,” “intermixed,” “ground in place,” “press fitted,” and “etched” are capable of construction as structural limitations.) [MPEP 2113.]

As discussed above, the manufacturing process for producing the claimed composition distinguishes it from the compositions disclosed by Ter-Sarkesyan et al. and JP ‘363. Therefore, the claimed composition is not anticipated by either of those references. Accordingly, withdrawal of these grounds of rejection is respectfully requested.

Applicants submit that the present application is in condition for allowance. Early notice to that effect is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.

\_\_\_\_\_  
Norman E. Oblon  
Attorney of Record  
Registration No. 24,618

\_\_\_\_\_  
James J. Kelly, Ph.D.  
Registration No. 41,504

Customer Number  
**22850**

Tel: (703) 413-3000  
Fax: (703) 413 -2220  
NFO/JK/asa